

List of Claims

1. (currently amended) A turbocharger life determining system, comprising:

a turbocharger;

at least one compressor inlet pressure sensor;

at least one compressor outlet pressure sensor;

an electronic control module in communication with the sensors and including, means for monitoring at least one of fatigue and creep of at least one component of the turbocharger, at least in part, by sensing at least one parameter correlated to an estimated turbocharger rotational speed; and

means for comparing at least one of the monitored fatigue and the monitored creep to a predetermined fatigue criteria and a predetermined creep criteria, respectively, at least part of, a turbocharger life determining algorithm; and

the turbocharger life determining algorithm being operable to determine the life of the turbocharger, at least in part, based on a relationship between the sensed compressor inlet pressure and the sensed compressor outlet pressure.

2. (currently amended) The turbocharger life determining system of claim 1 including at least one of an engine speed sensor, a compressor inlet temperature sensor, and a turbine inlet temperature sensor being in communication with the electronic control module; and

the turbocharger life determining algorithm being based, at least in part, on at least one of sensed engine speed, sensed compressor inlet temperature, and sensed turbine inlet temperature.

3. (cancelled)

4. (cancelled)

5. (currently amended) The turbocharger life determining system of claim 1 ~~wherein the turbocharger life determining algorithm includes a means for comparing algorithm being operable to compare~~ at least one of a monitored fatigue and a monitored creep with at least one of a predetermined fatigue criteria and predetermined creep criteria, respectively.

6. (cancelled)

7. (cancelled)

8. (cancelled)

9. (cancelled)

10. (cancelled)

11. (cancelled)

12. (cancelled)

13. (cancelled)

14. (original) A method of determining a life of a turbocharger comprising the steps of:

monitoring at least one of fatigue and creep of at least one component of the turbocharger, at least in part, by sensing at least one parameter correlated to an estimated turbocharger rotational speed; and

comparing at least one of the monitored fatigue and the monitored creep to a predetermined fatigue criteria and a predetermined creep criteria, respectively.

15. (original) The method of claim 14 wherein the step of monitoring includes a step of monitoring material degradation of at least one component of the turbocharger, at least in part, by monitoring at least one of compressor inlet temperature and turbine inlet temperature.

16. (original) The method of claim 14 wherein the step of monitoring includes a step of calculating a relationship between compressor inlet pressure and compressor outlet pressure.

17. (original) The method of claim 16 wherein the step of monitoring includes a step of sensing at least one of engine speed, compressor inlet temperature, and turbine inlet temperature.

18. (original) The method of claim 16 wherein the step of monitoring includes a step of monitoring transitions in the relationship.

19. (original) The method of claim 16 including a step of indicating when at least one of the monitored fatigue and creep exceeds a predetermined fatigue data and creep data, respectively.

20. (original) The method of claim 16 including a step of recording at least one of the monitored fatigue, the monitored creep and a calculated cumulative stress value for the turbocharger on at least one of the turbochargers, an engine associated with the turbocharger, and a database including identifying turbocharger information.